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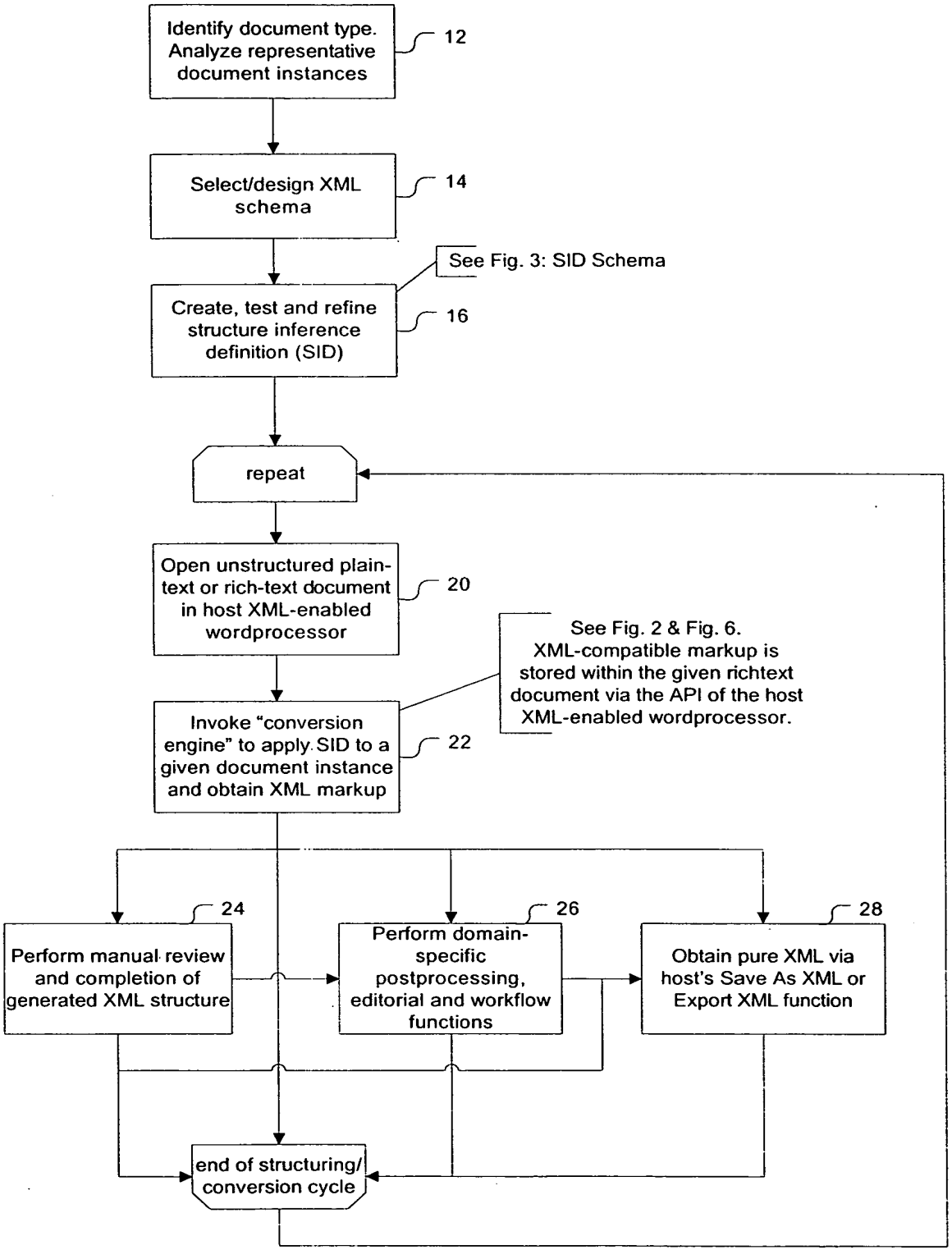
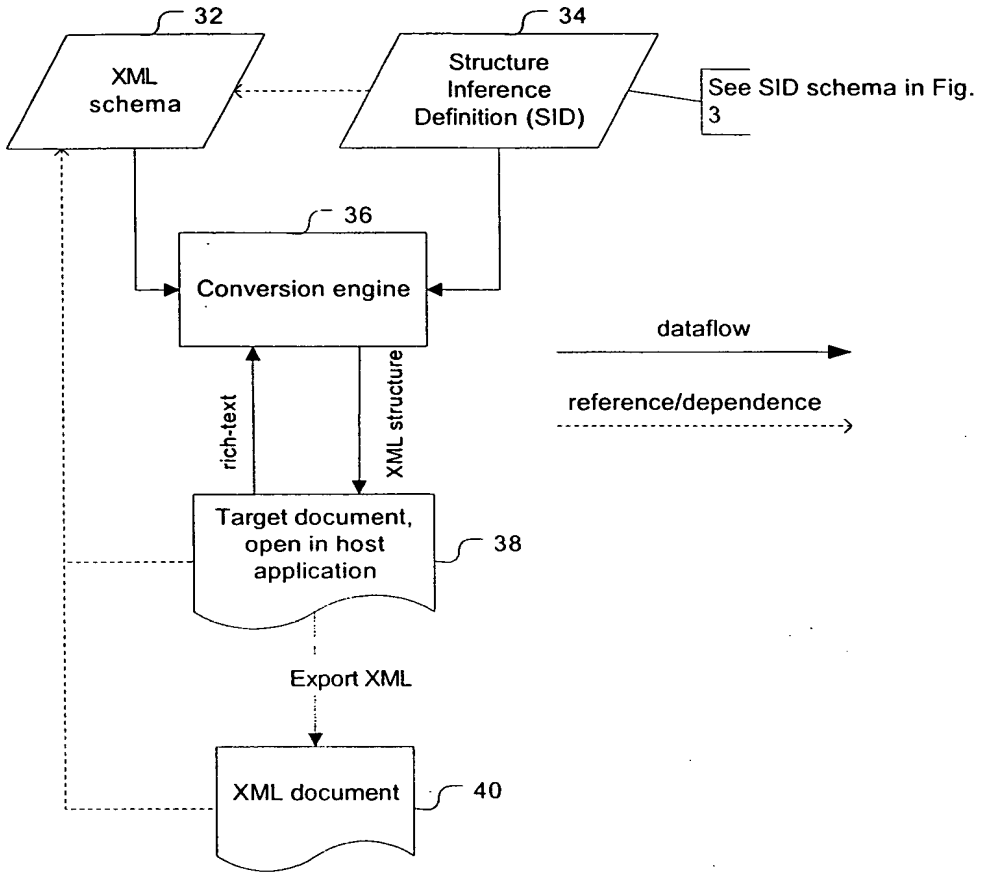

Identify document type. Analyze representative document instances
12
Select/design XML schema
14
See Fig. 3: SID Schema
Create, test and refine structure inference definition (SID)
16
repeat
Open unstructured plain-text or rich-text document in host XML-enabled wordprocessor
20
See Fig. 2 & Fig. 6. XML-compatible markup is stored within the given richtext document via the API of the host XML-enabled wordprocessor.
Invoke "conversion engine" to apply SID to a given document instance and obtain XML markup
22
24
Perform manual review and completion of generated XML structure
26
Perform domain-specific postprocessing, editorial and workflow functions
28
Obtain pure XML via host's Save As XML or Export XML function
end of structuring/ conversion cycle

Figure 1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XML schema
Structure Inference Definition (SID)
See SID schema in Fig. 3
36
Conversion engine
dataflow
reference/dependence
rich-text
XML structure
Target document, open in host application
38
Export XML
XML document
40

Figure 2

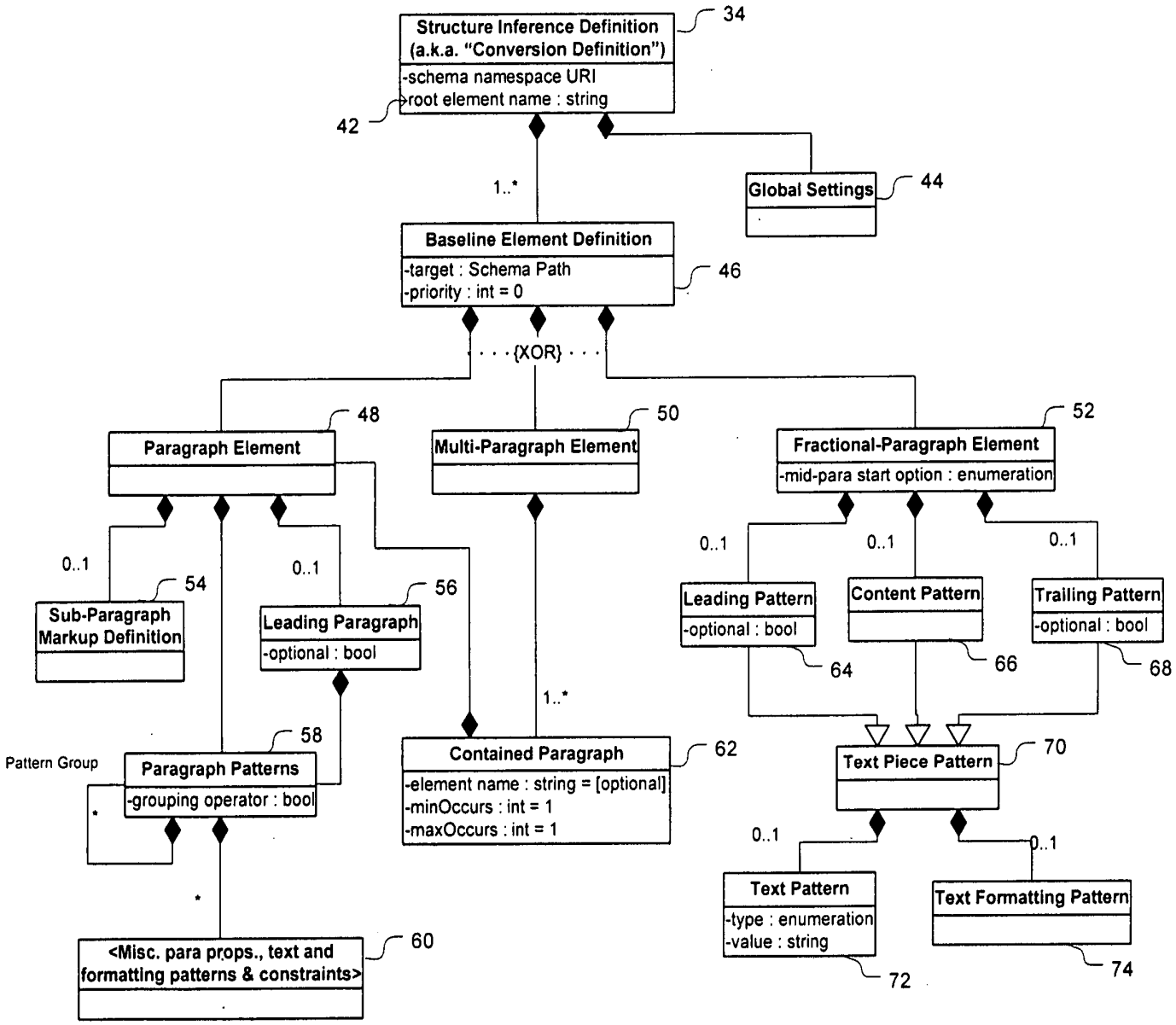


Figure 3: Structure Inference Definition Schema

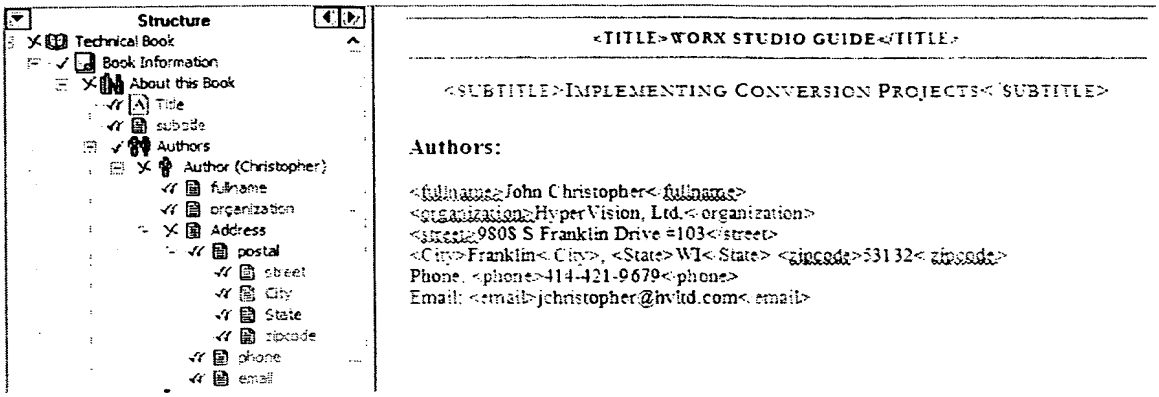


Figure 4: Example of Baseline Elements

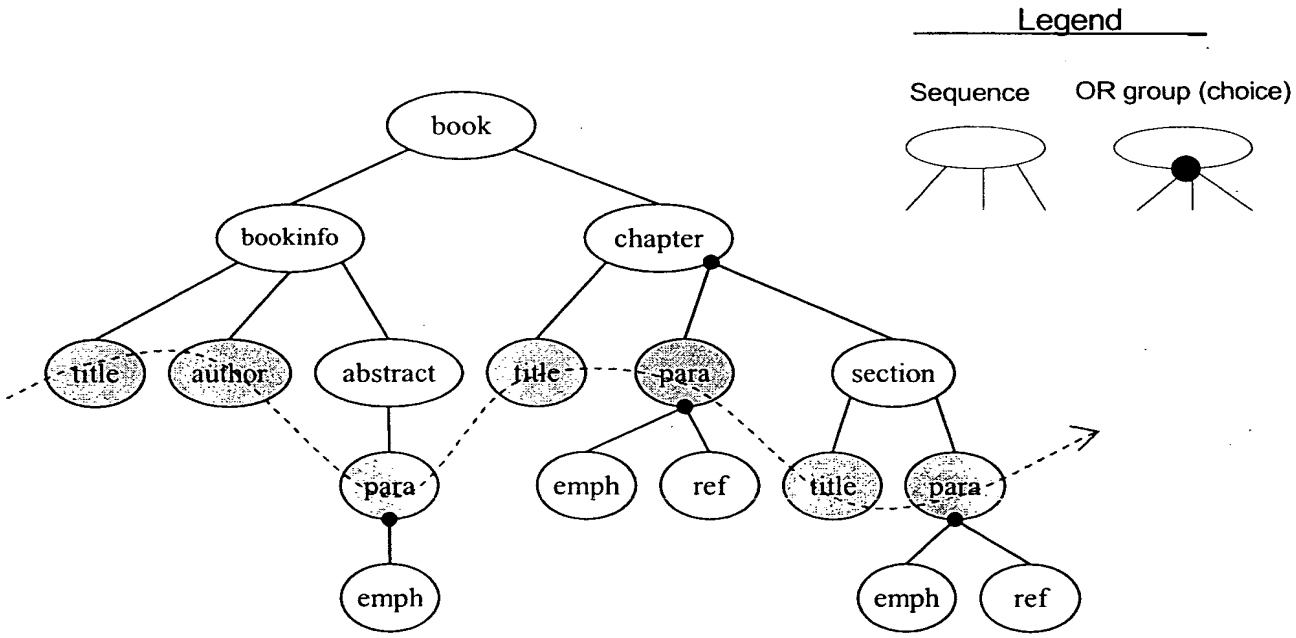


Figure 5: Example of Element Baseline in a document schema

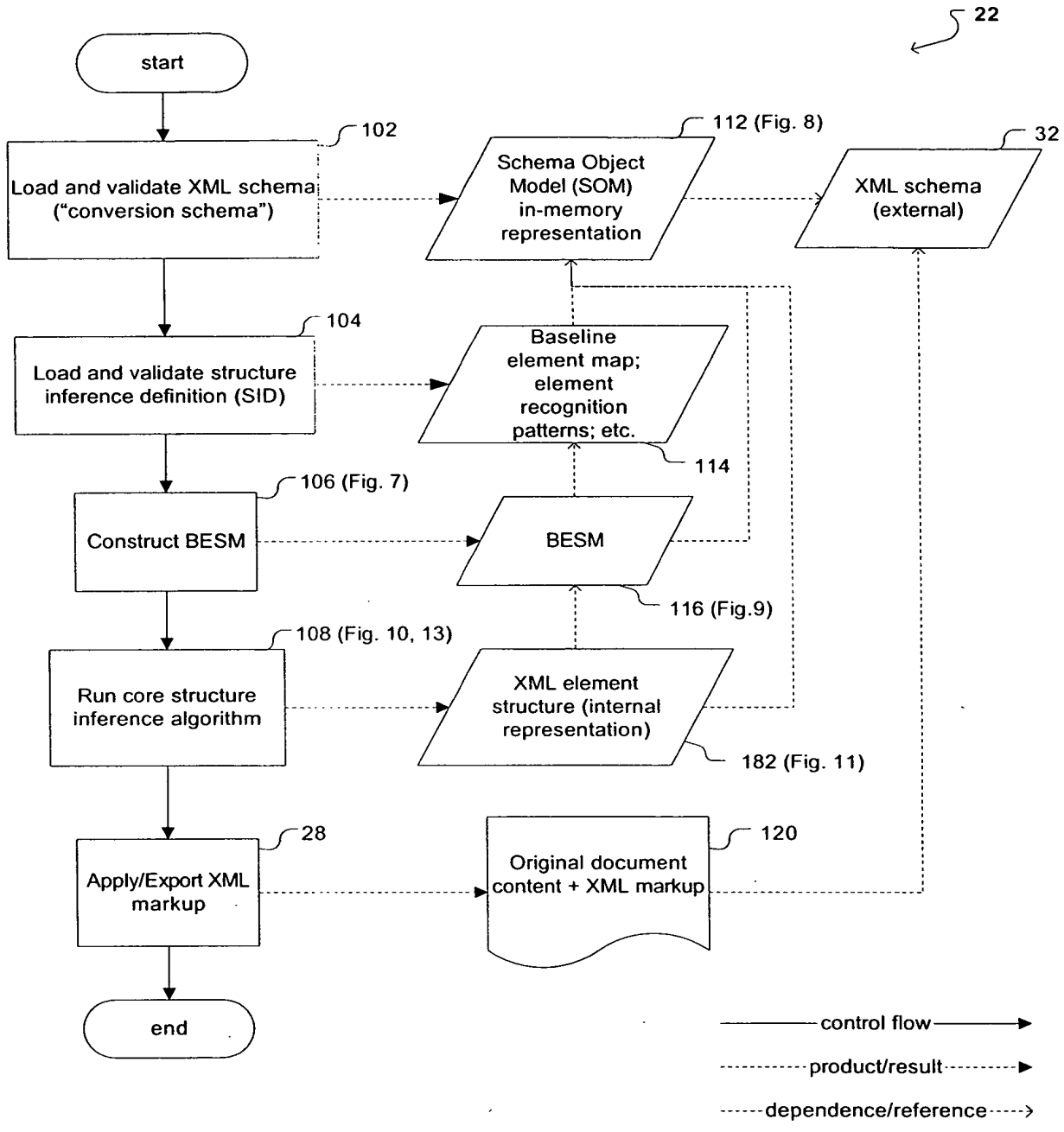


Figure 6: Conversion/structuring process: document parsing, structure inference, and XML markup creation

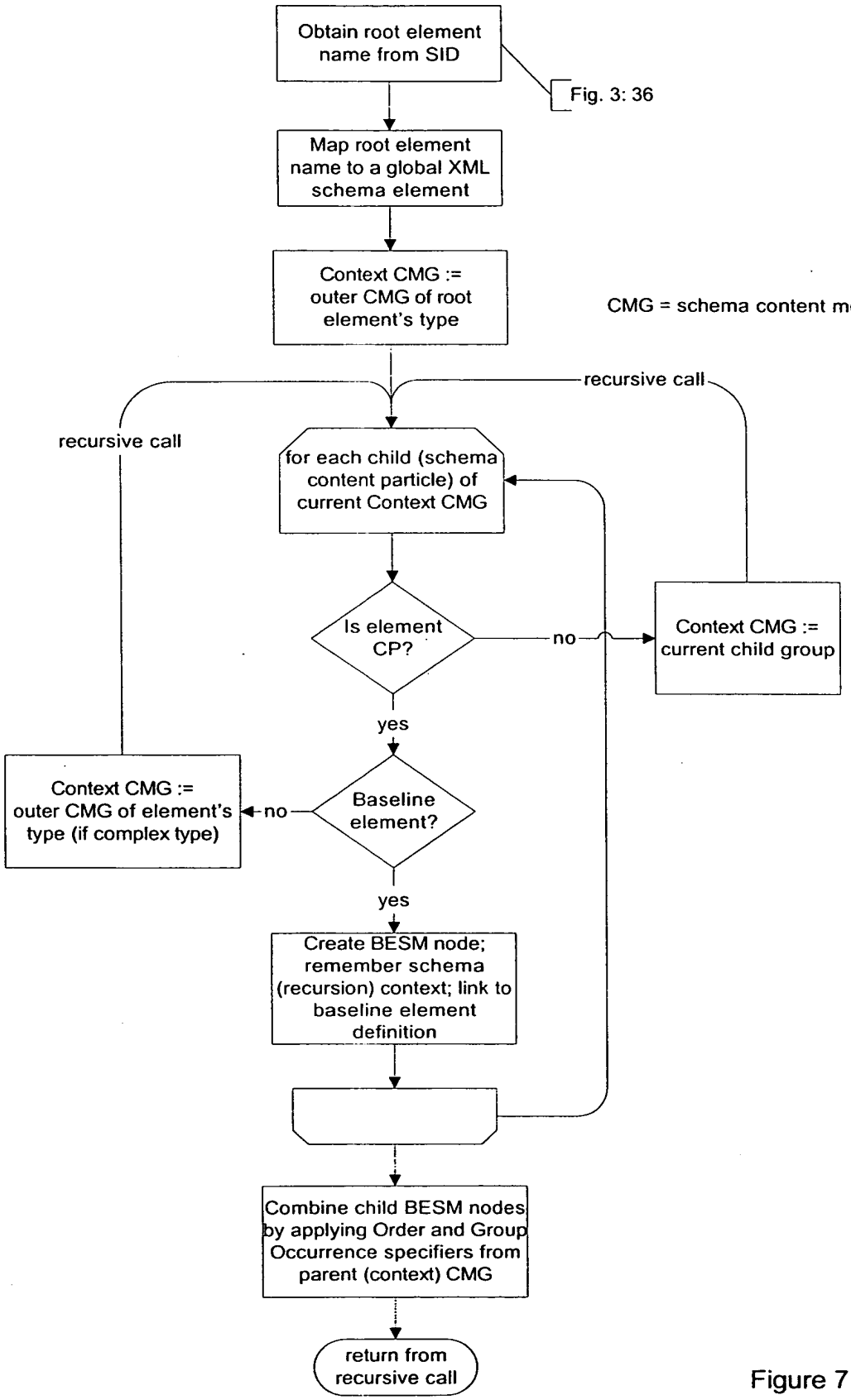


Figure 7. BESM Construction

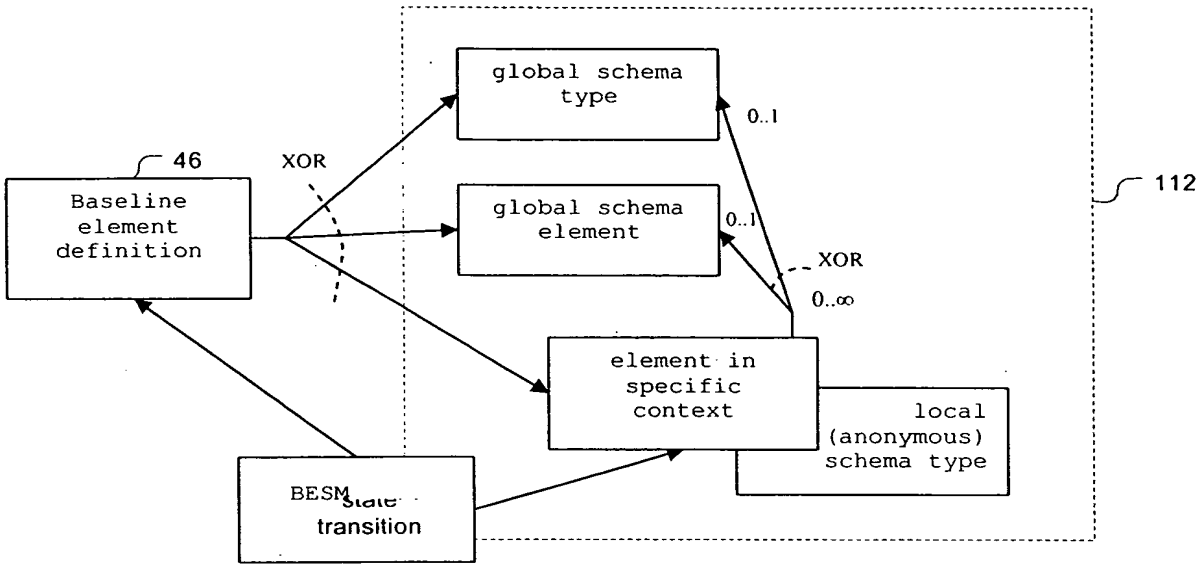
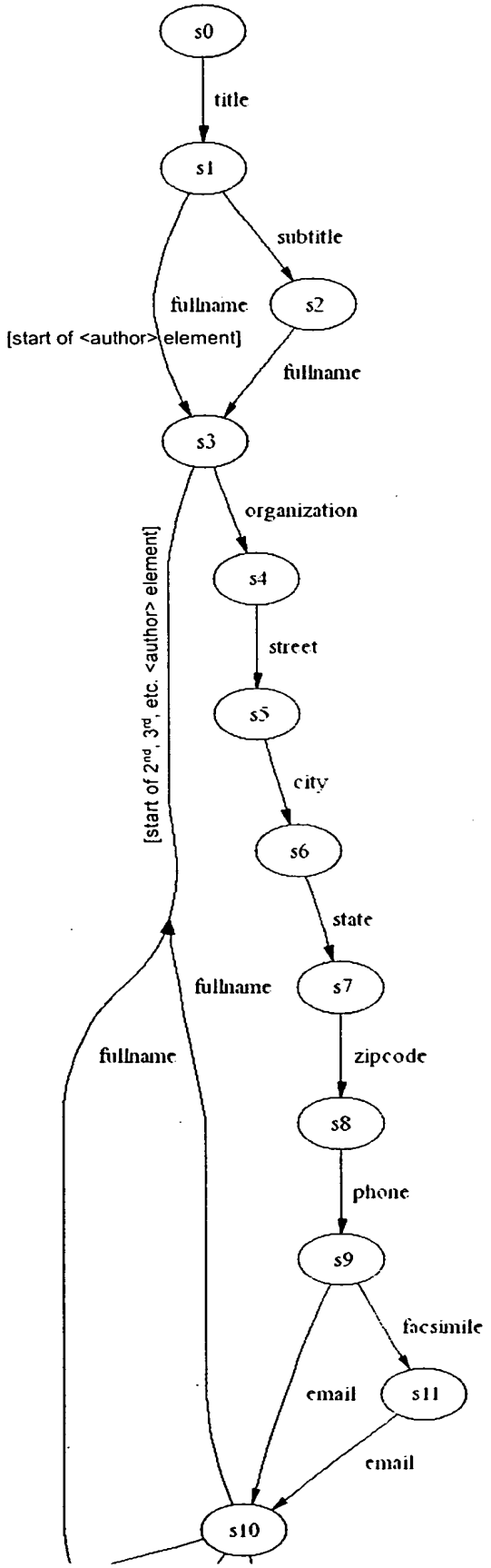
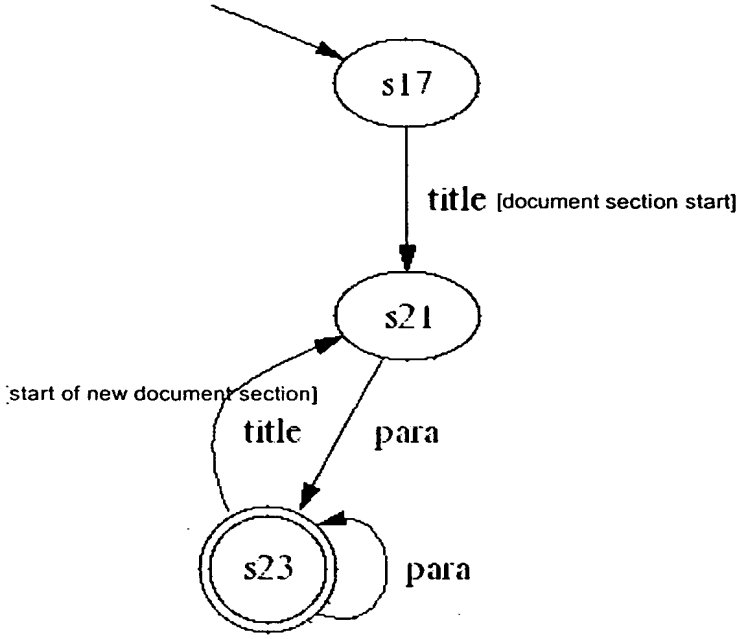


Figure 8. Data-structure relations between baseline elements, the BESM, and the XML schema





Note: The BESM transitions shown here are simple element names. In reality, they are full schema paths (starting from the defined root element).

Figure 9. BESM fragment samples

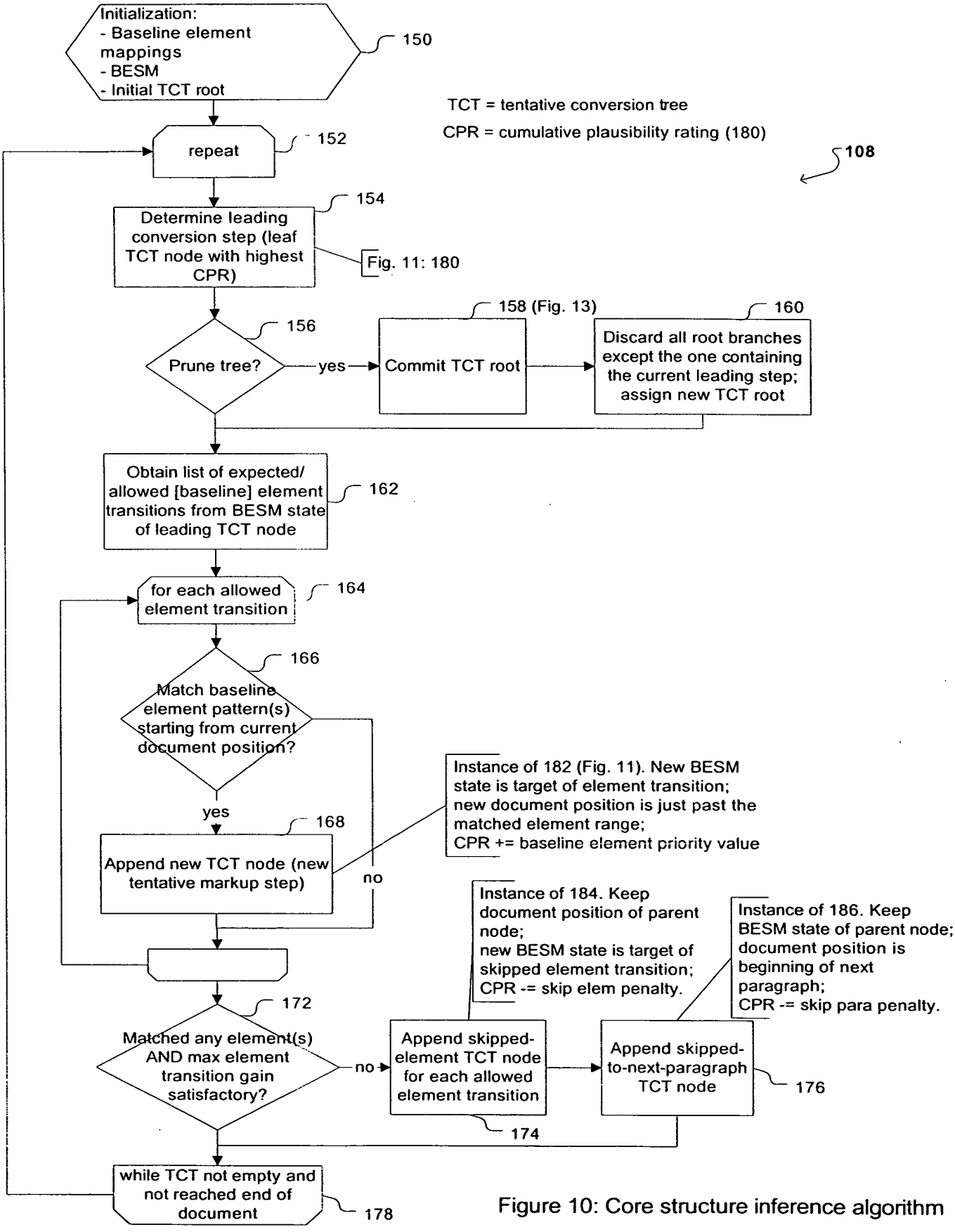


Figure 10: Core structure inference algorithm

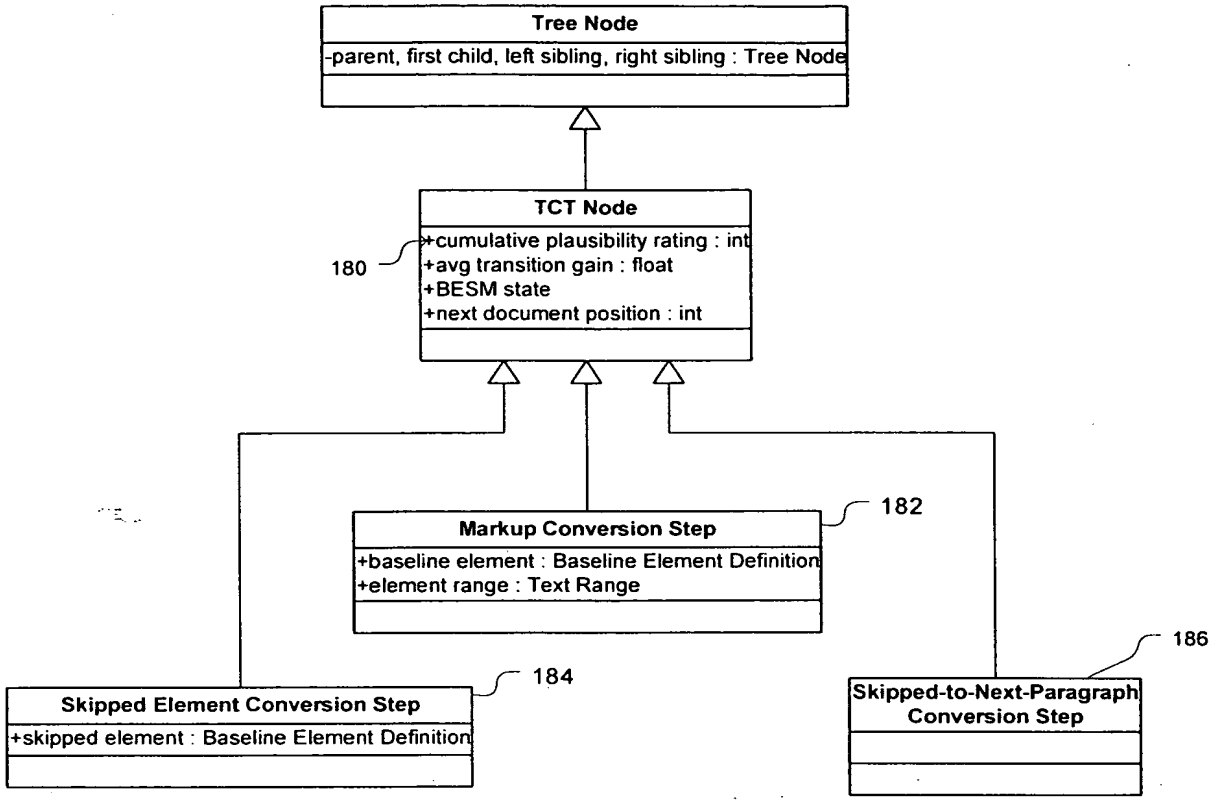


Figure 11. Tentative conversion tree (TCT) nodes, holding information about tentative conversion steps within the core structure inference algorithm

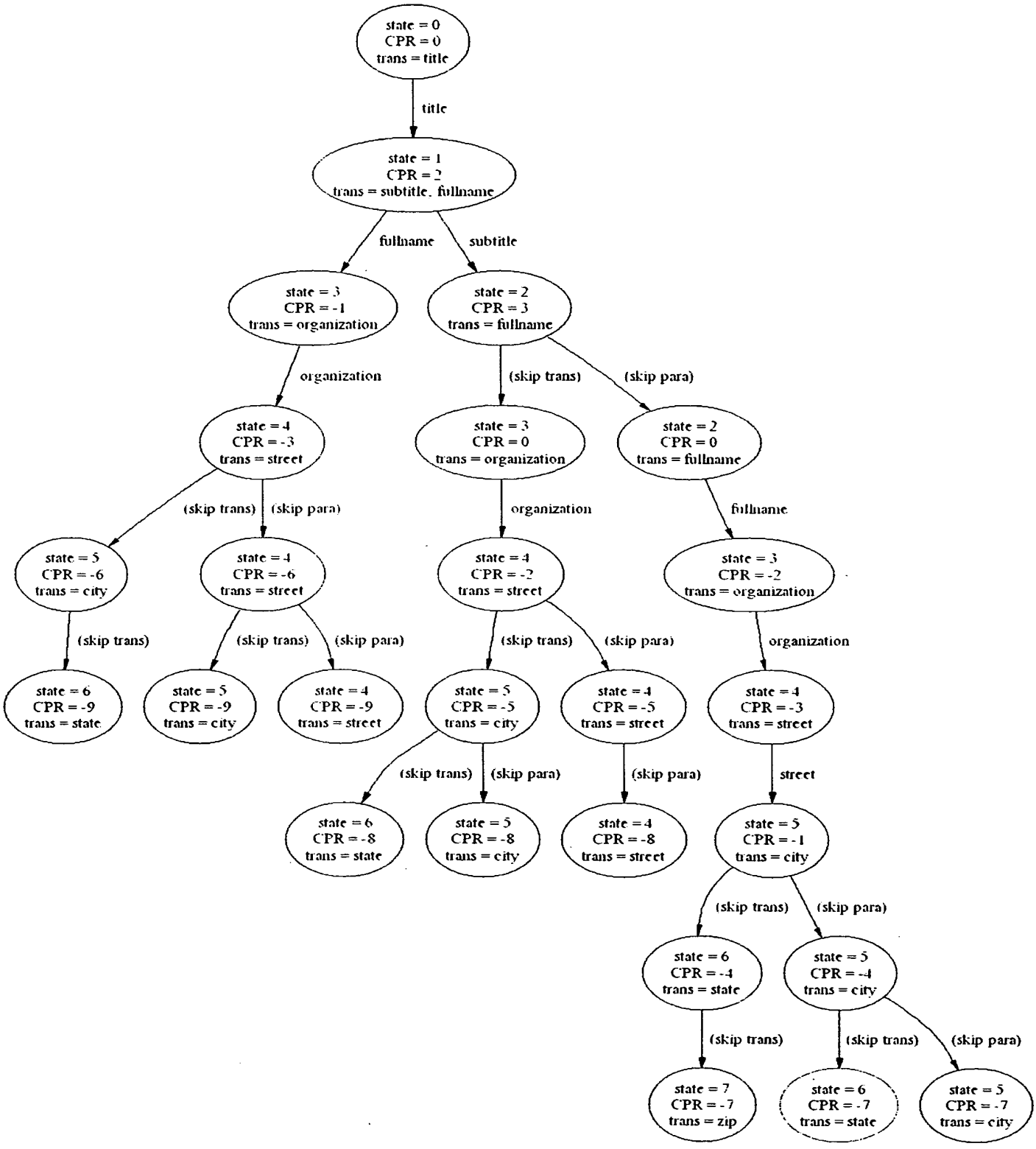


Figure 12: Tentative conversion tree sample

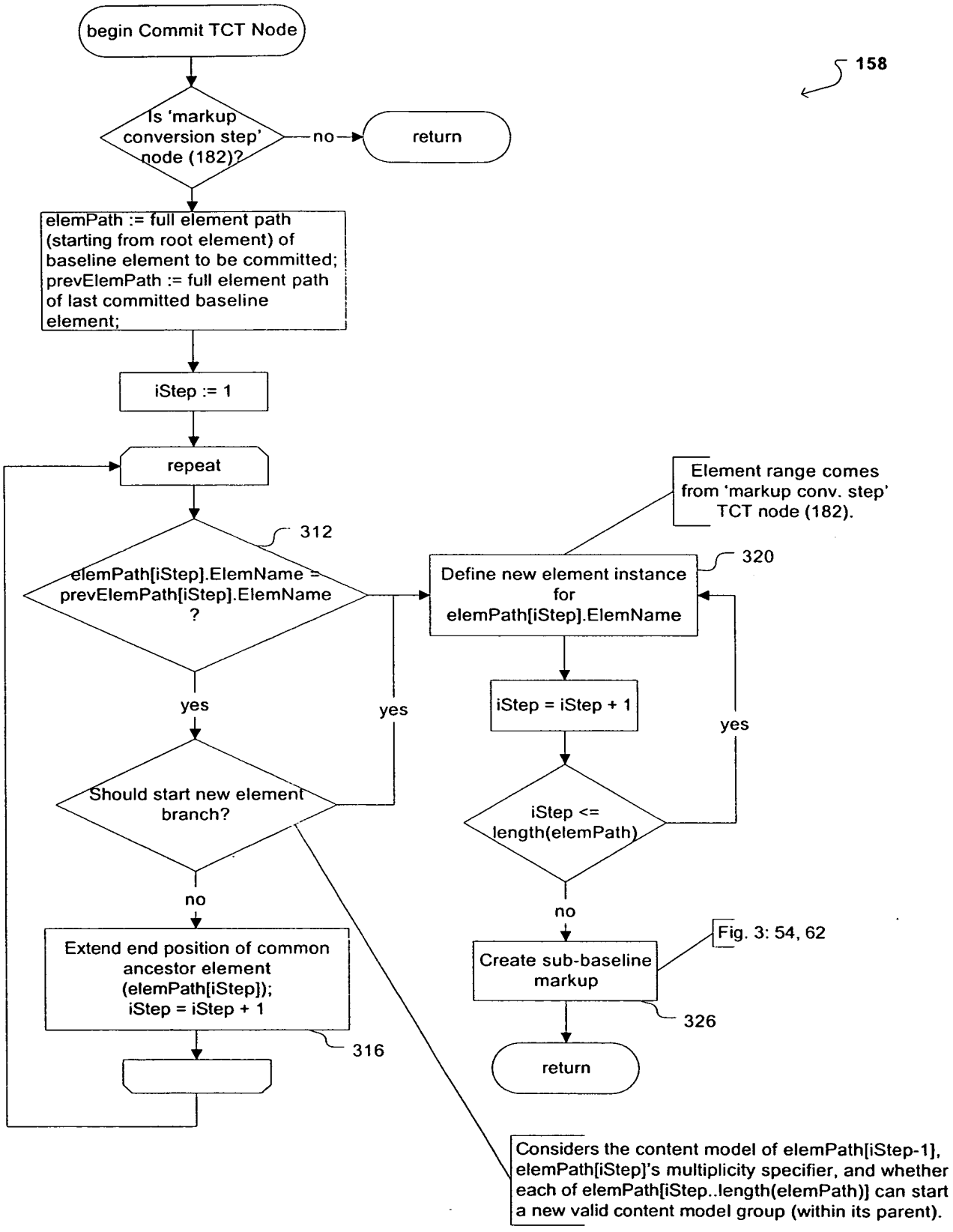


Figure 13. Committing a TCT node: creating a baseline element, inferring and creating higher-level structure, and creating sub-baseline markup

Marked Up: /book/bookinfo/bookbiblio/authorgroup/author/address/email

Conversion State: [document position]; cumulative rating: 20
Expected elements: uri, para, fullname, pubdate, para »
Matched Elements: uri

Marked Up: /book/bookinfo/bookbiblio/authorgroup/author/address/uri

Conversion State: [document position]; cumulative rating: 24
Expected elements: para, fullname, pubdate, para »
Matched Elements: (None)

Skipped to Next Paragraph

Conversion State: [document position]; cumulative rating: 14
Expected elements: para, fullname, pubdate, para »
Matched Elements: fullname

Marked Up: /book/bookinfo/bookbiblio/authorgroup/author[2]/fullname

Conversion State: [document position]; cumulative rating: 9
Expected elements: organization »
Matched Elements: organization

Marked Up: /book/bookinfo/bookbiblio/authorgroup/author[2]/organization

Marked Up: /content/document/section[6]/reference[23]/titlegroup/title

Conversion State: [document position]; cumulative rating: 453
Expected elements: volume, title »
Matched Elements: volume

Marked Up: /content/document/section[6]/reference[23]/volume

Conversion State: [document position]; cumulative rating: 452
Expected elements: page »
Matched Elements: page

Marked Up: /content/document/section[6]/reference[23]/page

Conversion State: [document position]; cumulative rating: 453
Expected elements: number, name, heading »
Matched Elements: (None)

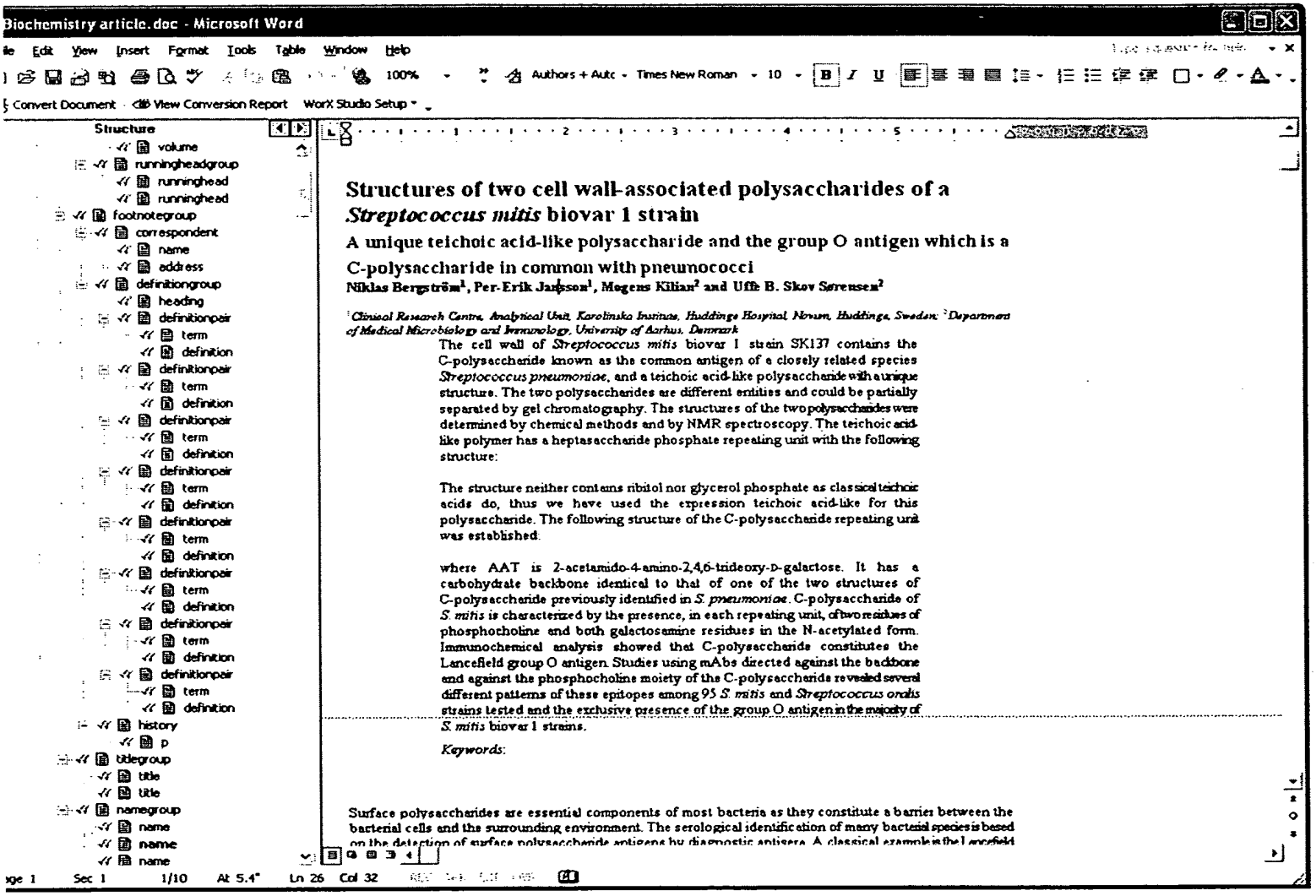
Skipped Element: content/document/section/heading

Conversion State: [document position]; cumulative rating: 442
Expected elements: number, name, p, heading »
Matched Elements: p

Marked Up: /content/document/section[6]/p

Conversion State: [document position]; cumulative rating: 437
Expected elements: p, heading, heading »
Matched Elements: p

Figure 14: Conversion/markup Report samples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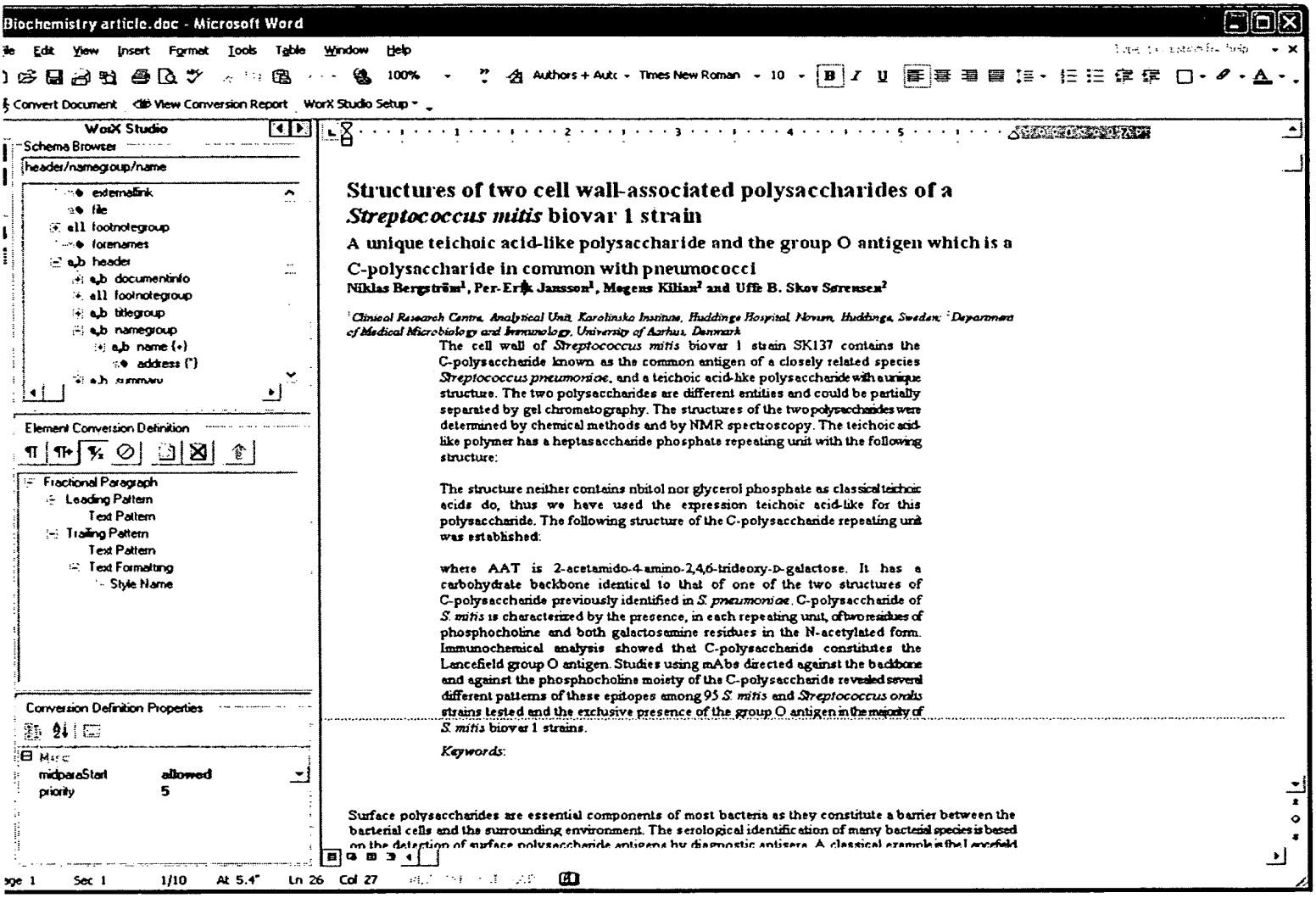
Structures of two cell wall-associated polysaccharides of a Streptococcus mitis biovar 1 strain
A unique teichoic acid-like polysaccharide and the group O antigen which is a C-polysaccharide in common with pneumococci
Niklas Bergström[1], Per-Erik Jansson[1], Mogens Kilian[2] and Uffe B. Skov Sørensen[2]
[1]Clinical Research Centre, Analytical Unit, Karolinska Institute, Huddinge Hospital, Novum, Huddinge, Sweden; [2]Department of Medical Microbiology and Immunology, University of Aarhus, Denmark
The cell wall of Streptococcus mitis biovar 1 strain SK137 contains the C-polysaccharide known as the common antigen of a closely related species Streptococcus pneumoniae, and a teichoic acid-like polysaccharide with a unique structure. The two polysaccharides are different entities and could be partially separated by gel chromatography. The structures of the two polysaccharides were determined by chemical methods and by NMR spectroscopy. The teichoic acid-like polymer has a heptasaccharide phosphate repeating unit with the following structure:
The structure neither contains ribitol nor glycerol phosphate as classical teichoic acids do, thus we have used the expression teichoic acid-like for this polysaccharide. The following structure of the C-polysaccharide repeating unit was established:
where AAT is 2-acetamido-4-amino-2,4,6-trideoxy-D-galactose. It has a carbohydrate backbone identical to that of one of the two structures of C-polysaccharide previously identified in S. pneumoniae. C-polysaccharide of S. mitis is characterized by the presence, in each repeating unit, of two residues of phosphocholine and both galactosamine residues in the N-acetylated form. Immunochemical analysis showed that C-polysaccharide constitutes the Lancefield group O antigen. Studies using mAbs directed against the backbone and against the phosphocholine moiety of the C-polysaccharide revealed several different patterns of these epitopes among 95 S. mitis and Streptococcus oralis strains tested and the exclusive presence of the group O antigen in the majority of S. mitis biovar 1 strains.
Keywords:
Surface polysaccharides are essential components of most bacteria as they constitute a barrier between the bacterial cells and the surrounding environment. The serological identification of many bacterial species is based on the detection of surface polysaccharide antigens by diagnostic antisera. A classical example is the Lancefield
Page 1 Sec 1 1/10 At 5.4" Ln 26 Col 32

Figure 15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all footnotegroup
a,b titlegroup
a,b namegroup
a,b name (+)
address (*)
Element Conversion Definition
Fractional Paragraph
Leading Pattern
Text Pattern
Trailing Pattern
Text Pattern
Text Formatting
Style Name
Conversion Definition Properties
Misc
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priority 5
Structures of two cell wall-associated polysaccharides of a Streptococcus mitis biovar 1 strain
A unique teichoic acid-like polysaccharide and the group O antigen which is a C-polysaccharide in common with pneumococci
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Keywords:
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Page 1 Sec 1 1/10 At 5.4" Ln 26 Col 27

Figure 16